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REPORT

CD NO.

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CENTRAL INTELLIGENCE AGENCY

INFORMATION FROM

FOREIGN DOCUMENTS OR RADIO BROADCASTS

DATE OF

INFORMATION 1950

SUBJECT

COUNTRY

Scientific - Electricity, transformers

DATE DIST.

1 DEC 1950

HOW **PUBLISHED**

Monthly periodical

Czechoslovakia

WHERE

PUBLISHED Mileria NO. OF PAGES 2

DATE

LANGUAGE

PUBLISHED Jul 1950

SUPPLEMENT TO

REPORT NO.

DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL I KE UNITED STATES WITHIN THE MEANING OF ESPIONAGE C. 31 AND 22.6 AMENDED. ITS TRANSMISSION OR THE REV 5 CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON

Russian

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SOURCE

Elektrichestvo, No 7, 1950, p.89.

TRANSFORMER BUILDING IN CZECEOSLOVAKIA

A. G. Krayz

A number of articles appearing in a 1949 issue of the periodical "Elektrotechnicky Obzer," published in Czechoslovakia, were devoted to modern problems of transformer building.

Up to the present time, a final solution has not been found to the problem of detecting damage to transformers during impulse tests, slithough a number of books on this subject have been published in recent years.

Investigating this problem, Heller, Blavka, and Veverka analyzed the fluctustion of the fundamental oscillation frequency at the neutral point of a transformer visding during interturn short circuiting occurring while carrying out impulse tests. This analysis showed that interturn short circuiting affects the main magnetic flux. Oscillographic study of the oscillations at the neutral point of the coil during an impulse test, shi the recording of the fluctuations of these oscillations, would therefore seem to be a good method of detecting interturn and intercoil spark-overs.

A series of experiments to check theoretical data were carried out on transformer models with insulated neutral points. Different windings, with both a large and a small number of turns, were reproduced on these models and it was found that interturn spark-overs were clearly recorded even when the number of shorted turns did not exceed 0.05% of the total (1 turn in 2000). In some cases it was also possible to establish the location of the interturn spark-over in the winding.

K. Fabry's article exemines the impulse strength of the layer-type winding in comparison with the coil type. From the equivalent circuit of a transformer with a layer-type winding, the conditions of aperiodic voltage fluctuation in the winding were worked out for two basic types, and the causes of oscillation in these transformers were analyzed. It was shown that a decrease in the oscillation of the gransformer windings under impulse influence could be achieved by

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locating the layer nearest the neutral point closer to the grounded pirts, i.e., by producing the maximum possible increase in its capacitance to ground. On this basis, the author proposed a number of winding systems with an increased impulse atrength.

M. Gabler's article refers to voltage regulation under load in transformers. The two problems of increasing the quality of electric power and maintaining a stabilized voltage level at the consumer end are of great importance and where several electric power stations are operating in parallel, these problems can only be solved by the maximum use of regulating transformers. The article gives a description of the systems most commonly used in Czechoslovakia for voltage regulations under load, considers the effects of short circuiting in windings during change-over from one step to another, and examines electromagnetic effects occurring in the evitching devices.

F. Pasak's article considers problems connected with the design of transformers for industrial enterprises, the relation between operational consumption and the characteristics of a transformer, reserve capacity, operation in parallel, and the life of a machine under various loads.

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